



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,800	06/04/2001	James J. Barnat	501094	2864

23626 7590 07/16/2003

LEYDIG VOIT & MAYER, LTD  
6815 WEAVER ROAD  
ROCKFORD, IL 61114-8018

EXAMINER

ADDIE, RAYMOND W

ART UNIT	PAPER NUMBER
----------	--------------

3671

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/873,800

Applicant(s)

BARNAT ET AL.

Examiner

Raymond W. Addie

Art Unit

3671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 and 38-75 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25, 38-55 and 60-75 is/are rejected.
- 7) ☒ Claim(s) 56-59 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 38, 42-45, 60, 61 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Brien et al. # 5,895,173.

O'Brien et al. discloses a method of chipsealing a roadway using a roadway paving vehicle having wheels, comprising the steps of:

Supporting the entire roadway paving vehicle with wheels disposed entirely in front of the spraying of asphalt binder and discharging of aggregate such that no wheels roll over said asphalt and aggregate.

Spraying asphalt binder material from the roadway paving vehicle over a roadway surface forming a layer of asphalt binder material on the roadway surface.

Discharging aggregate material from the roadway paving vehicle over the layer of asphalt binder material.

Preventing intermixing of asphalt binder and aggregate material prior to the application of aggregate and spraying of asphalt binder to the roadway surface.

Insuring that no wheels of the roadway paving vehicle roll over the asphalt binder or aggregate material after they are discharged onto the roadway.

Selectively controlling the spraying to set a 1st span of a 1st length over which asphalt binder is sprayed.

Selectively controlling the discharging to set a 2<sup>nd</sup> span of a 2<sup>nd</sup> length over which aggregate material is discharged.

Varying the lengths of the 1st and 2<sup>nd</sup> spans in substantial unison such that substantially all asphalt bind is covered with aggregate material. See O'Brien col. 2, Ins. 42-47, col. 2, ln. 56-col. 4. ln. 48.

In regards to Claim 45 O'Brien et al. discloses the spraying of asphalt and discharging of aggregate material are proximate one another, but does not disclose the distance at which the spraying and discharging occurs. However, O'Brien does disclose spraying asphalt onto the aggregate as it is being discharged onto the roadway. Hence, it would be inherent to one of ordinary skill in the art, at the time the invention was made, that the spraying and discharging must be spaced no less than a few inches from one another, in order to coat the aggregate with asphalt as each is being dispensed, as disclosed by O'Brien et al.

In regards to Claims 60, 61 O'Brien et al. discloses a roadway paving apparatus for applying asphalt binder material and aggregate material to a ground surface comprising:  
A vehicle (not shown).

Art Unit: 3671

An aggregate material dispensing system carried by the vehicle adapted to hold a supply of aggregate material and having a discharge port (34).

A conveyor for supplying aggregate to the output hopper and wherein asphalt binder material and aggregate material are not mixed prior to application to the ground surface.

An asphalt binder material dispensing system carried by the vehicle separate from the aggregate material dispensing system such that asphalt binder and aggregate are not mixed prior to aggregate material being dispensed through the discharge port. Said asphalt binder dispensing system comprising:

A sprayer having at least one spray bar (40, 50) each having a plurality of spray nozzles (41, 42, 51, 52), respectively.

Wherein all of the wheels roll on the ground surface between the spray bar and the front of the vehicle.

Although O'Brien does not disclose the carrier vehicle as having an engine and wheels, it is inherent that in order for a carrier vehicle to mobilize the roadway paving apparatus over an area being chip sealed, the carrier vehicle must have an engine and wheels.

Art Unit: 3671

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 6, 7, 9, 13-15, 38, 47, 62, 63, 69, 71-75 are rejected under 35 U.S.C.

103(a) as being unpatentable over O'Brien et al. # 5,895,173 in view of Soliman et al. # 5,269,626 and Heiligttag et al. # 4,315,700.

O'Brien et al. discloses a roadway paving apparatus (20), intended for use in applying asphalt binder material and aggregate material to a ground surface, comprising:

An aggregate material dispensing system carried by a vehicle (not shown) comprising:

An output hopper (30) disposed proximate the rear end of said vehicle. The output hopper converging toward a discharge port (34) adapted to discharge aggregate material over the ground surface (10).

A conveyor mechanism (not shown) adapted to transport aggregate material to the top (32) of the output hopper.

An asphalt binder material dispensing system (40-42, 44, 50-52, 54) carried by the vehicle separate from the aggregate material system, such that asphalt binder material and aggregate material are not mixed prior to aggregate material being dispensed through the discharge port, the asphalt binder material dispensing system comprising:

A plurality of spray bars (40, 50), at least one of said spray bars being disposed between the discharge port (34) and the front end of the vehicle.

A plurality of nozzles (41, 42, 51, 52) adapted to spray asphalt binder material.

Wherein all of the wheels roll on the ground surface (10) between the spray bar and the front end of the vehicle, such that no wheels roll over asphalt binder material and aggregate material that are discharged by said spray bar and through said output hopper. Although O'Brien et al. discloses the paving apparatus (20) "forms a part of a self-propelled carrier vehicle (not shown)", O'Brien et al. does not disclose any of the structural features of the carrier vehicle.

However, Soliman discloses a machine utilizing road-making materials, comprising:

A carrier vehicle (10) having traction means intended to ensure its movement over the ground, such as an engine and wheels, and further having an front and rear end. Said carrier vehicle further comprising:

An input hopper (12) disposed proximate the front end of the vehicle adapted to receive aggregate material.

A conveyor device (14) extending between the input hopper and an output hopper (16). adapted to transport aggregate material from the input hopper and said output hopper.

A spray bar (32) disposed between a discharge port (18) of the output hopper and the front end of the vehicle.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the road paving apparatus of O'Brien et al., with a carrier vehicle having an input hopper and a conveyor device, as taught by Soliman, in order to propel the apparatus over a ground surface, being paved, as clearly disclosed by O'Brien et al.

What O'Brien et al. in view of Soliman does not disclose is providing an "on board" asphalt binder storage facility. However, Heiligtag et al. teaches it is desirable to provide a carrier vehicle (3) with an "on board" liquid asphalt storage and facility, comprising:

A tank (47) for holding an asphalt binder material.

A pump mechanism (51), adapted to pump asphalt binder material from the tank to a spray bar (53).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the paving apparatus of O'Brien et al. in view of Soliman, with an "on board" liquid asphalt storage facility, as taught by Heiligtag et al., in order to provide a liquid asphalt material of uniform consistency.

See O'Brien et al., col. 3, ln.46-col. 6, ln. 55; Figs. 1, 2; Soliman, col. 2-col. 4, ln. 5; Heiligtag et al. col. 1, lns. 6-12; col. 3, lns. 34-60.



In regards to Claims 2, O'Brien et al. discloses the asphalt binder material and aggregate material are not mixed prior to application to the ground surface.

In regards to Claims 6, 7 O'Brien et al. discloses an auger (36) is desirable provided within the bottom of the hopper (30) for dispensing aggregate from the hopper, and that the roadway paving apparatus can be part of a self-propelled carrier vehicle (not shown), but does not disclose the specifics of the carrier vehicle. However, Soliman teaches it is desirable to provide an input hopper (12) onto the front end of a carrier vehicle, and clearly illustrates an auger (unnumbered) within the hopper and above the conveyor (14) for dispensing aggregate material from the hopper (12) to the conveyor (14). Soliman further illustrates a mechanical coupling device disposed on the front end of the input hopper (12), which is adapted to selectively attach and detach from a supply tractor trailer, carrying aggregate material for filling the input hopper. See col. 2, lns 42-48; Fig. 1. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the roadway paving apparatus of O'Brien et al., with a carrier vehicle as taught by Soliman, in order to ensure the movement of the paving apparatus over the ground. As taught by Soliman, see col. 2, lines 39-41.

In regards to Claims 9, O'Brien in view of Soliman discloses a spray bar assembly having a plurality of nozzles, but does not disclose the use of a plurality of valves.

However, Heiligtag et al. teaches it is desirable to provide an asphalt spray bar assembly having a plurality of nozzles (45a-d), and a plurality of valves (53a-d), each valve corresponding to a respective nozzle. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the roadway paving apparatus of O'Brien in view of Soliman with a plurality of valves, as taught by Heiligtag et al. in order to control the flow of asphalt to the roadway surface. See Heiligtag et al. col. 3, lines 30-65.

In regards to claims 13 O'Brien discloses the spray bar is generally parallel to the discharge port and is spaced in front of said discharge port. Although O'Brien et al. does not disclose what distance the spray bar is spaced in front of said discharge port, Fig. 1 clearly illustrates the spray bar (40) is disposed proximate the front end of the discharge port. Hence it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the spray bar of O'Brien et al. within a distance of 1-10 feet in front of the aggregate discharge port, as reasonably suggested by O'Brien, in order to accurately spray the asphalt binder material onto the road surface and onto the aggregate, as the aggregate is being dispensed onto the roadway surface, as taught by O'Brien et al. See col. 5.

In regards to claim 14 O'Brien et al. discloses applying up to 3 layers of asphalt binder material onto the roadway, such that "once these layers have been deposited by the paving apparatus (20), they become indistinguishable from one another". But does not disclose the travel speed of the vehicle as it is dispensing the binder and asphalt.

However, Soliman teaches the carrier vehicle must "offer a suitable range of speeds of advance". Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to operate the roadway paving apparatus of O'Brien, within a suitable range of advance, as taught by Soliman, in order to apply an consistent thickness of binder and aggregate, such that the layers applied are indistinguishable from one another. See O'Brien et al. col. 4, Ins. 19-29; Soliman col. 2, Ins. 50-51.

In regards to Claim 15 O'Brien et al. discloses a method of chipsealing a roadway with a roadway paving vehicle having a front and rear end, the method comprising:

Storing a supply of asphalt binder material in a supply source of asphalt binder material.

Transporting asphalt binder from the source to a plurality of spray bars (40, 50) at the rear end of the roadway paving vehicle.

Spraying asphalt binder from the spray bars at a first span over the roadway surface, forming a layer of asphalt binder on the roadway.

Storing a supply of aggregate material in a hopper.

Transporting aggregate material to an output hopper (30) at a rear end of a vehicle via a conveyor (not shown).

Discharging aggregate material from the output hopper at a 2<sup>nd</sup> span over the layer of asphalt binder material.

Preventing intermixing of asphalt binder material and aggregate material prior to the discharging of aggregate material and spraying of asphalt binder material.

What O'Brien et al. does not disclose is the method step of providing an input hopper to the front of the vehicle.

However, Soliman teaches it is desirable to provide a paving vehicle with an input hopper (12) for storing a supply of aggregate material at the front of the vehicle.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the method of chipsealing a roadway, of O'Brien et al. with the method step of providing an input hopper at the front end of a paving vehicle, as taught by Soliman, in order to maintain a supply of aggregate to the output hopper at the rear of the vehicle.

What O'Brien et al. in view of Soliman does not disclose, is storing a supply of asphalt in a tank, on the roadway paving vehicle. However, Heiligtag et al. teaches it is desirable to provide a liquid asphalt storage tank (47) to the front of a paving vehicle, in order to maintain a consistent, well mixed supply of liquid asphalt and to transport said liquid asphalt to a spray bar assembly. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the method of chipsealing of O'Brien et al. in view of Soliman, with the method of providing a storage

tank and transporting a liquid asphalt from said tank to a spray bar, as taught by Heiligttag et al., in order to provide a consistent, well mixed liquid asphalt material to a roadway surface, as reasonably suggested by O'Brien, Soliman and Heiligttag et al.

In regards to Claims 23, 24 O'Brien et al. discloses supporting the entire roadway vehicle with wheels disposed entirely in front of the spraying of asphalt binder and discharging of aggregate material such that no wheels roll over sprayed asphalt or discharged aggregate. O'Brien et al. further discloses disposing the spray bar and the discharge port proximate one another, such that a liquid asphalt material may be sprayed onto the roadway surface in front of the aggregate material being discharged onto the coated roadway surface, as well as spraying liquid asphalt material onto the falling curtain of aggregate material, in order to coat the aggregate with asphalt, as it is being dispensed onto the roadway. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to dispose the discharge port and the spray bar within a few inches of one another in order to coat the roadway and aggregate with liquid asphalt, as said aggregate is being dispensed.

In regards to Claims 71-75 O'Brien et al. discloses the output hopper (30) is part of the paving vehicle and is free of spreading apparatus behind the aggregate discharge port; the vehicle and anything carried thereby is free of any apparatus that would contact the

ground surface behind the discharge port and wherein the aggregate material can be transported to the output hopper for discharge via a conveyor mechanism. See col. 3, Ins. 46-51; col. 4, Ins. 61-63.

3. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien et al. # 5,895,173 in view of Soliman et al. # 5,269,626 and Heiligttag et al. # 4,315,700, as put forth with respect to claim 69 above and further in view of Hill # 5,234,128.

However, Hill teaches an aggregate material spreader comprising:

A plurality of gates (14) dividing a discharge port (36). The gates having open and closed positions, for controlling the volume of aggregates discharged.

The output hopper further having a chute (as seen in Fig. 1) for receiving an aggregate material from an upwardly and rearwardly disposed conveyor mechanism,

A control unit (51) to control speed of the conveyor mechanism and opening and closing of the gates (14). Said hopper (10) having expansion bins (11, 12,13), controlled by additional gates (14), for varying the width of aggregates being spread.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the apparatus of O'Brien et al. in view of Soliman et al. and Heiligttag et al. with an aggregate dispensing system, as taught by Hill, in order to provide a means to accurately meter and spread aggregates onto the surface. See Hill Col. 4, lines 40-col. 6, line 39.

4. Claims 1, 2, 6, 7, 13-15, 23-25, 62, 63, 65-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien et al. # 5,895,173 in view of Bense et al. # 5,069,578 and Clark, Jr. et al. # 5,957,621.

O'Brien et al. discloses essentially all that is claimed, to include disposing all vehicle wheels in front of the spray bar and the discharge port, as put forth above, such that the asphalt binder and aggregate are not mixed prior to application to the ground surface; but does not disclose the specific structure and features of the carrier vehicle.

However, Bense et al. discloses a method and device for producing a surface coating on a roadway. Said apparatus comprising:

A vehicle (1) having an engine and wheels, front and rear ends. Said apparatus further comprising:

An input hopper (14) disposed proximate the front end of the vehicle adapted to receive aggregate material.

A conveyor mechanism comprising a plurality of conveyor devices (12', 34') extending between the input hopper and the output hopper.

An asphalt binder dispensing system carried by the vehicle separate from the aggregate material system comprising:

A plurality of tanks (43, 44) for holding asphalt binder, such as a bituminous emulsion.

What O'Brien et al., in view of Bense et al., does not disclose is providing an asphalt pump. However, Clark, Jr. et al. teaches a system for applying liquid asphalt to a roadway comprising: A storage tank (T), a variable width spray bar (12, 14, 16) an asphalt pump (30), disposed between the tank and the spray bar, at least one valve (25) for supplying a consistent span of asphalt binder material onto a roadway.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the roadway paving apparatus of O'Brien et al. in view of Bense et al. with a liquid asphalt storage facility on the machine, as taught by Clark, Jr. et al. in order to supply a consistent span of asphalt binder material onto a roadway. See O'Brien et al. col. 3, ln. 46-col. 6; Bense et al. col. 3-col. 6, col. 8, lns. 30-37.

In regards to Claims 6, 7 O'Brien discloses essentially all that is claimed except for the specific structure of the carrier vehicle. However, Bense et al. teaches it is desirable to provide a mechanical coupling device (29/30) to the front end of the vehicle, the coupling device (29) being adapted to selectively attach and detach from a supply truck carrying aggregate material for filling the input hopper (14). Said input hopper (14) further comprising at least one auger (unnumbered, but clearly illustrated in Figs. 1, 3). The input hopper and conveyor assembly (12) constituting an automatic feeding mechanism.



Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the roadway paving apparatus of O'Brien et al. with a carrier vehicle, as taught by Bense et al., in order to provide a continuous paving system. See col. 4, of Bense et al.

In regards to Claims 13, 14 O'Brien discloses the spray bar is generally parallel to the discharge port and is spaced in front of said discharge port. Although O'Brien et al. does not disclose what distance the spray bar is spaced in front of said discharge port, Fig. 1 clearly illustrates the spray bar (40) is disposed proximate the front end of the discharge port. Further, Bense et al. teaches the spray bar (40)...and the zone/discharge port of an output hopper are disposed close together, one after another, at the rear part of the machine...bearing in mind the speed of the machine (at least 10 meters/minute). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the roadway paving apparatus of O'Brien with a carrier vehicle, operated as taught by Bense et al., in order to maximize the paving speed of the paving system. See Bense col. 3, Ins. 30-40; col. 8, Ins 54-66.

In regards to Claim 15, O'Brien et al. discloses a method of chipsealing a roadway with a roadway paving vehicle having a front and rear end, the method comprising:  
Storing a supply of asphalt binder material in a supply source of asphalt binder material.

Transporting asphalt binder from the source to a plurality of spray bars (40, 50) at the rear end of the roadway paving vehicle.

Spraying asphalt binder from the spray bars at a first span over the roadway surface, forming a layer of asphalt binder on the roadway.

Storing a supply of aggregate material in a hopper.

Transporting aggregate material to an output hopper (30) at a rear end of a vehicle via a conveyor (not shown).

Discharging aggregate material from the output hopper at a 2<sup>nd</sup> span over the layer of asphalt binder material.

Preventing intermixing of asphalt binder material and aggregate material prior to the discharging of aggregate material and spraying of asphalt binder material.

What O'Brien et al. does not disclose is the method step of providing an input hopper to the front of the vehicle.

However, Bense et al. teaches a method of paving a roadway comprising:

Providing a carrier vehicle with an input hopper in order to store a supply of aggregate material at the front of the vehicle.

Transporting aggregate material from the input hopper to the rear of the vehicle via a conveyor system.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the method of chipsealing a roadway of O'Brien et al.

with a method of providing a carrier vehicle having an input hopper and a conveyor system, as taught by Bense et al., in order to provide a consistent supply of aggregate to a distribution hopper.

What O'Brien et al. in view of Bense et al. do not disclose is the structure of the source of asphalt binder material. However, Clark, Jr. et al. teaches a method of applying a liquid asphalt material onto a roadway comprising the steps of:

Storing a supply of liquid asphalt in a storage tank (T) on the machine.

Transporting the liquid asphalt from the tank to a spray bar assembly.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the method of chipsealing a roadway of O'Brien et al., in view of Bense et al., with the method step of supplying a liquid asphalt storage facility on the machine, as taught by Clark et al., in order to provide a consistent supply of liquid asphalt onto the roadway. See O'Brien et al. col. 3-6; Bense et al. Col. 3-6; Clark, Jr. et al. cols. 4-6.

In regards to Claims 23, 24 O'Brien et al. discloses supporting the entire roadway vehicle with wheels disposed entirely in front of the spraying of asphalt binder and discharging of aggregate material such that no wheels roll over sprayed asphalt or discharged aggregate. O'Brien et al. further discloses disposing the spray bar and the discharge port proximate one another, such that a liquid asphalt material may be

sprayed onto the roadway surface in front of the aggregate material being discharged onto the coated roadway surface, as well as spraying liquid asphalt material onto the falling curtain of aggregate material, in order to coat the aggregate with asphalt, as it is being dispensed onto the roadway. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to dispose the discharge port and the spray bar within a few inches of one another in order to coat the roadway and the aggregate with liquid asphalt, as the aggregate is being dispensed.

In regards to Claim 25 O'Brien et al. discloses a method of chipsealing a roadway, but does not disclose the speed at which the vehicle travels. However, Bense et al. discloses a method for producing a surface coating on a roadway, in which the carrier vehicle can perform paving operations at a speed of at least 10 meters/minute. See Bense et al. col. 3, Ins. 38-40.

5. Claims 3, 4, 16, 17, 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien '172 in view Bense et al. '578 and Clark Jr. et al. ' 621 as applied to claims 1, 15 above, and further in view of Murray # 5,000,615.

O'Brien in view of Bense et al. and Clark Jr. et al. discloses essentially all that is claimed, to include the use of supply vehicles for supplying additional quantities of asphalt and aggregate, but does not disclose how the asphalt is transferred from the

supply vehicle to the paving vehicle. However, Murray teaches a system and method for laying pavement, comprising: Providing an asphalt paving apparatus (10) further comprising: An asphaltic binder material holding tank (64), an input pump (68) having an input conduit (70) for receiving binder material from a supply truck (16/14) and transporting said binder material to said holding tank (64), as well as an output pump (66) disposed between the holding tank (64) and an output device (52). Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the paving system of O'Brien in view of Bense et al. and Clark Jr. et al. with a pump mechanism having both input and output pumps, as taught by Murray, in order to resupply the paving apparatus with a binder material. See Murray col. 1, Ins. 64-col. 3, ln. 22.

In specific regard to Claims 16, 17 O'Brien in view of Bense et al., Clark Jr. et al. discloses essentially all that is claimed discloses essentially all that is claimed, with respect to claim 15 above, but does not disclose how to resupply binder materials to the paving apparatus. However, Murray teaches a paving method comprising the steps of: Providing a supply truck (16) to a paving apparatus (10). Said supply truck further comprising a supply tank for supplying an asphaltic binder material, and storage bins (44, 46) for processing aggregate materials to be supplied to the paving apparatus (10).

Said supply truck further having a live bottom conveyor (50) for transporting an aggregate material from the storage hopper, to a paving apparatus input hopper (52). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the method of paving a roadway of Terry in view of O'Brien with the method step of providing a supply truck, as taught by Murray, in order to provide a means to perform continuous paving operations.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien '172 in view Bense et al. '578, Clark Jr. et al. ' 621 and Murray # 5,000,615, as applied to claim 4 above and further in view of Jenne et al. # 6,099,616.

O'Brien in view Bense et al., Clark Jr. et al., and Murray discloses essentially all that is claimed, except for the use of a swivel joint in the input conduit. However, Jenne et al. teaches a method for recovering vapors during dispensing of a bituminous product into a holding tank mounted to a vehicle. Said apparatus further comprising: An input conduit (18) having a swivel joint (46) for flexibility when positioning the input conduit. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the paving apparatus of O'Brien in view Bense et al., Clark Jr. et al., and Murray, with an input hose having a swivel joint, as taught by Jenne et al., in order to provide flexibility in the conduit, when a paving apparatus is coupled to a supply truck.

7. Claims 8, 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien '173 in view of Bense et al., and Clark, Jr. et al. as applied to claim 7 above, and further in view of Benedetti et al. # 4,765,772. O'Brien in view of Bense et al. and Clark, Jr. et al. discloses a paving machine having an input hopper and an output hopper, but does not disclose a hopper having "expansion wings". However, Benedetti et al. teaches a paving machine, consisting of a hopper (11) having expansion wings (13) at opposed sides of the input hopper. Said wings pivoting from a lower position wherein a 1<sup>st</sup> horizontal spacing is defined between the expansion wings to a raised transport position wherein a 2<sup>nd</sup> horizontal spacing is defined between the expansion wings, that is less than the 1<sup>st</sup> horizontal spacing. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the paving apparatus of O'Brien in view of Bense et al. and Clark Jr. et al. with an input hopper having expansion wings, as taught by Benedetti et al. in order to maximize the volume of the hopper. See Benedetti et al. col. 6, line 65-col. 7, line 14.

8. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien in view of Soliman and Heiligtag et al., as applied to claim 9 above, and further in view of Hill # 5,234,128. O'Brien in view of Soliman and Heiligtag et al. discloses an output hopper having a discharge port, but does not disclose the use of a discharge

closure assembly comprising a plurality of gates. However, Hill teaches an aggregate material spreader comprising:

A plurality of gates (14) dividing a discharge port (36). The gates having open and closed positions, for controlling the volume of aggregates discharged.

The output hopper further having a chute (as seen in Fig. 1) for receiving an aggregate material from an upwardly and rearwardly disposed conveyor mechanism,

A control unit (51) to control speed of the conveyor mechanism and opening and closing of the gates (14). Said hopper (10) having expansion bins (11, 12,13), controlled by additional gates (14), for varying the width of aggregates being spread.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the apparatus of O'Brien in view of Soliman and Heiligtag et al., with an aggregate dispensing system, as taught by Hill, in order to provide a means to accurately meter and spread aggregates onto the surface. See Hill Col. 4, lines 40-col. 6, line 39.

9. Claims 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien et al. '173 in view of Bense et al. '578 and Clark, Jr. et al. '621, as applied to claim 15 above, and further in view of Bowers # 3,260,176.

O'Brien et al. in view of Bense et al. and Clark, Jr. et al. disclose a method of chipsealing a roadway to include providing a supply truck, but do not disclose providing



a supply truck having a liquid asphalt supply and an aggregate supply. However, Bowers discloses it is desirable to provide a single supply truck having a hopper (50), for storing aggregates, and a storage tank (12) for storing asphalt binding materials; and control apparatus (77, 98, 49, 84, 63) proximate the tail gate of the dump body (11), for controlling discharge of paving materials. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the method of chip sealing a roadway, of O'Brien et al. in view of Bense et al. and Clark, Jr. et al., with the method steps of providing a supply truck having both asphalt and aggregate supply capacity, as well as providing controls near the end of the tail gate, such that an operator can control the discharge of materials from said supply truck.

See Bowers col. 2-3.

9. Claims 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien et al. '173 in view of Murray # 5,000,615. Murray discloses a method of chipsealing a roadway by spraying a liquid asphalt and an aggregate material onto the roadway, but does not disclose providing a supply truck having an aggregate supply and a liquid asphalt supply. However, Murray teaches a paving method comprising the steps of: Providing a supply truck (16) to a paving apparatus (10). Said supply truck further comprising a supply tank for supplying an asphaltic binder material, and storage bins (44, 46) for processing aggregate materials to be supplied to the paving apparatus

(10). Said supply truck further having a live bottom conveyor (50) for transporting an aggregate material from the storage hopper, to a paving apparatus input hopper (52). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the method of chipsealing a roadway of O'Brien with the method step of providing a supply truck, as taught by Murray, in order to provide a means to perform continuous paving operations. See Murray Figs. 1A, 1B; col. 3, 4.

10. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien '173 in view of Bense et al. '578.

O'Brien et al. discloses essentially all that is claimed, with respect to claim 38 but does not disclose the speed of travel of the paving operation. However, Bense et al. discloses it is desirable to proceed with a paving operation at a speed of at least 10 meters/minute. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to operate the chipsealing method of O'Brien et al. at a speed of at least 10 meters/minute, as taught by Bense et al., in order to form a consistent thickness asphalt and aggregate and to maximize the amount of chipsealing that can be completed in a given time.

11. Claims 47-51, 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien et al. '173 in view of Kilheffer et al. # 5,590,976.

O'Brien et al. discloses a roadway paving vehicle comprising an asphalt binder dispensing system and an aggregate material dispensing system, as put forth above, with respect to Claim 1. What O'Brien does not disclose is using at least 2 supply trucks to resupply the paving vehicle. However, Kilheffer et al. teaches mobile paving system comprising: a paving vehicle (10) having a plurality of aggregate hoppers (12, 14) and a plurality of binder material storage tanks (18, 20). Kilheffer et al. further teaches the desirability to provide means (70) to receive additional paving materials from a plurality of supply trucks. Said means (70) further comprising:

A link (70), such as a transfer conduit between a 1<sup>st</sup> supply truck and the paving vehicle (10), and wherein the aggregate material is transferred from a supply hopper to the aggregate dispensing system. Further wherein, the asphalt tank and aggregate material dispensing system have a sufficient holding capacity such that said 1<sup>st</sup> supply truck and be unlinked from the roadway paving vehicle and a 2<sup>nd</sup> one of the supply trucks may be linked to the roadway paving vehicle with continuous application of asphalt binder material and aggregate material without stopping the roadway paving vehicle. See 3, lines 40-45, 5, line 49-col. 6, line 12. Therefore, it would have been obvious to one of ordinary skill in the art, to provide the paving apparatus of O'Brien with a refill system, as taught by Kilheffer et al., in order to perform continuous paving operations.

Art Unit: 3671

In regards to Claims 48, 49, 54 O'Brien discloses essentially all that is claimed, to include: A sprayer, comprising at least 1 spray bar (40) having a plurality of nozzles (41, 42), a plurality of wheels (60) for support, and being disposed in front of the spray bar and discharge chute (32), such that no wheels roll over asphalt or aggregate that have been applied to the roadway surface. O'Brien further discloses an output hopper (30) having a discharge chute (34), a conveyor mechanism extending between a supply of aggregate and the output hopper (30). What O'Brien does not disclose are the structural features of the vehicle (not shown), that provide aggregate and binder material to the paving apparatus (20). However, Kilheffer et al. teaches a mobile paving system comprising a self-propelled vehicle (20) able to travel at least  $\frac{1}{2}$  mile/hour and comprising:

An input hopper (12) an output hopper (24) both having a discharge port, and conveyor system (22, 23, 28) transporting aggregate material between said input and output hoppers. Kilheffer et al. further teaches a variable speed displacement pump (64), disposed between said storage tanks (18, 20) and a discharge port. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the paving apparatus of O'Brien, with an input hopper and asphalt pump, as taught by Kilheffer et al., in order to perform a continuous paving operation. See col. 3, col. 4, lines 20-37, col. 5, lines 38-43.

In regards to Claim 53 O'Brien et al. discloses the spraying of asphalt and discharging of aggregate material are proximate one another, but does not disclose the distance at which the spraying and discharging occurs. However, O'Brien does disclose spraying asphalt onto the aggregate as it is being discharged onto the roadway. Hence, it would be obvious to one of ordinary skill in the art, at the time the invention was made, that the spraying and discharging must be spaced no less than a few inches from one another, in order to coat the aggregate with asphalt as each is being dispensed, as disclosed by O'Brien et al.

In regards to Claim 55 O'Brien et al. discloses a roadway paving system for chipsealing a roadway, but does not disclose the use of resupply trucks. However, Kilheffer et al. teaches a resupply path (70) can comprise a separate conveyor belt for conveying aggregate from a nurse truck into an input hopper (12). Therefore, it would have been obvious to provide the chipsealing apparatus of O'Brien, with a carrier vehicle, able to receive a supply truck, as taught by Kilheffer et al., in order to provide a continuous paving system. See Kilheffer et al. col. 5, lns. 55-60.

12. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brien et al. '173 in view of Kilheffer et al. '976, as applied to claim 51 above, and further in view of Jenne et al. '616.

O'Brien in view of Kilheffer et al. '976 discloses a chipsealing apparatus able to receive a supply truck for refilling the chipsealing apparatus but does not disclose the use of a swivel joint. However, Jenne et al. teaches a method for recovering vapors during dispensing of a bituminous product into a holding tank mounted to a vehicle. Said apparatus further comprising: An input conduit (18) having a swivel joint (46) for flexibility when positioning the input conduit. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the paving apparatus of O'Brien et al., in view of Kilheffer et al., with an input hose having a swivel joint, as taught by Jenne et al., in order to provide flexibility in the conduit, when a paving apparatus is coupled to a supply truck.

### ***Response to Amendment***

13. The affidavit filed on 5/5/2003 under 37 CFR 1.131 is sufficient to overcome the reference to Terry # 6,444,258.

### ***Response to Arguments***

14. Applicant's arguments with respect to claims 1-25, 38-75 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

15. Claims 56-59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Addie whose telephone number is (703) 305-0135. The examiner can normally be reached on Monday-Friday from 8:00 am to 2:00 pm, 6-8 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will, can be reached on (703) 308-3870. The fax phone number for this Group is (703) 308-8623.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1113.

  
Thomas B. Will  
Supervisory Patent Examiner  
Group 3600